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BIOC 595.01: Advanced Cellular Biochemistry

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Advanced Cellular Biochemistry Phar/Bioc 595

Spring Semester 2003

Instructors

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Lecture

Monday and Wednesday
8:10-10:00 AM
Skaggs Building SB230

Textbook

recommended text

Molecular Biology of the Cell (fourth edition, 2002)

Editors: B. Alberts, A. Johnson, J. Lewis, M. Raff, K. Roberts, P. Walter
Publisher: Garland Press

supplemental text

Molecular Cell Biology (fourth edition, 2000)

Editors: H. Lodish et al.
Publisher: W. H. Freeman

Course Details

This 4 credit course explores on a molecular level the regulation of structure, function, and dynamics of eukaryotic cells. Topics include membranes, cytoskeleton, transcription, translation, signal transduction, cell motility, cell proliferation, and programmed cell death. Research papers pertinent to selected lecture topics will be discussed. Papers will be distributed one week prior to discussion. A letter grade system will be used based on one midterm exam, one final exam, paper discussion, and class participation.

Date	Lecture	Instructor	Topic	Text
Jan 27	1	Grimes	Membrane Structure and Membrane Protein Synthesis	Chapter 10,12 (pp 689-711)
Jan 29	2	Grimes	Protein Sorting	Chapter 12
Feb 3	3	Grimes	Vesicle trafficking	Chapter 13
Feb 5	4	Grimes	Membrane Transport and Electrical Properties	Chapter 11
Feb 10	5	Kuhn	DNA structure, Chromosomes, Chromatin	Chapter 4
Feb 12	6	Kuhn	DNA replication, Repair, and Recombination	Chapter 5
Feb 17			Holiday (President's Day)	
Feb 19	7	Kuhn	Transcription and RNA Processing	Chapter 6
Feb 24	8	Kuhn	Control of Gene Expression	Chapter 7
Feb 26	9	Kuhn	Translation, Ribosomes, Protein Folding	Chapter 6
Mar 3	10	Kuhn	Genetics and recombinant DNA Technology	Chapter 8/9
Mar 6	11	Kuhn	Genomics and Bioinformatics	Chapter 7 (pp 453-465)
Mar 10	12	Kuhn	Protein Structure and Enzymatics	Chapter 3
Mar 12	13	Kuhn	Proteomics	Chapter 8/9
Mar 17	14	Kuhn	Proteomics	Chapter 8/9
Mar 19			Midterm Exam	
Mar 24-28			Spring Break	

Date	Lecture	Instructor	Topic	Text
Mar 31	15	Kuhn	Energetics	Chapter 14
Apr 2	16	Kuhn	Cytoskeleton and Adhesion	Chapter 16 and 19
Apr 7	17	Kuhn	Cell Motility and Contractility	Chapter 16
Apr 9	18	Grimes	Receptor dynamics and Signal Transduction	Chapter 15
Apr 14	19	Grimes	Receptor dynamics and Signal Transduction	Chapter 15
Apr 16	20	Grimes	Cell Cycle and Cell Division	Chapter 17 and 18
Apr 21	21	Grimes	Cell Cycle and Cancer	Chapter 17 and 23
Apr 23	22	Grimes	Apoptosis and Senescence	Chapter 17
Apr 28	23	Grimes	Apoptosis and Senescence	Chapter 17
Apr 30	24	Grimes	Antibodies and the Immune System	Chapter 24
May 5	25	Grimes	Antibodies and the Immune System	Chapter 25
May 7	26	Kuhn/Grimes	Development	Chapter 21
May 12-16			Final Exam	